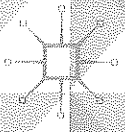
UNDERSTANDING DIGITAL HUMANITIES

Edited by David M. Berry



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Understanding Digital Humanities

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First published 2012 by
PALGRAVE MACMILLAN

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Palgrave Macmillan in the US is a division of St Martin's Press LLC, 175 Fifth Avenue, New York, NY 10010.

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ISBN: 978–0–230–29264–2 hardback
ISBN: 978–0–230–29265–9 paperback

This book is printed on paper suitable for recycling and made from fully managed and sustained forest sources. Logging, pulping and manufacturing processes are expected to conform to the environmental regulations of the country of origin.

A catalogue record for this book is available from the British Library.

A catalog record for this book is available from the Library of Congress.

For Felicity Ann Berry Hale

Contents

Illustrations

Table

Figures

Ernst, W. (2007), *Das Gesetz des Gedächtnisses* (Berlin: Kadmos).
Ernst, W. (2009), 'Method and Machine', lecture at Anglia Ruskin University, Cambridge, 18 November 2009.
Ernst, W. (2011), 'Media Archaeography – Method & Machine versus History & Narrative of Media', in E. Huhtamo and J. Parikka (eds), *Media Archaeology* (Berkeley, CA: University of California Press, 239–255).
Foucault, M. (2001), 'Cours du 14 janvier 1976', in M. Foucault, *Dits & ecrits II, 1976–1988* (Paris: Gallimard).
Foucault, M. (2002), *The Archaeology of Knowledge*, trans. A. M. Sheridan Smith (New York and London: Routledge).
Guins, R. (2009), *Edited Clean Version:Technology and the Culture of Control* (Minneapolis: University of Minnesota Press).
Hertz, G. and Parikka, J. (2012), "Zombie Media: Circuit Bending Media Archaeology into an Art Method". *Leonardo-journal*, forthcoming 2012.
Horn, E. (2008), 'There is No Media', *Grey Room* 29 (Winter): 7–13.
Huhtamo, E. (2008), *The Roll Medium: The Origins and Development of the Moving Panorama Until the 1860s*. PhD dissertation, University of Turku. Book version forthcoming from University of California Press in 2011.
Kirschenbaum, M. (2008), *Mechanisms: New Media and the Forensic Imagination* (Cambridge, MA: The MIT Press).
Kittler, F. A. (1999), *Gramophone, Film, Typewriter*, translated, with an introduction, by G. Winthrop-Young and M. Wutz (Stanford, CA: Stanford University Press).
Kittler, Friedrich A. (2006), 'Thinking Colours And/Or Machines' Theory', *Culture & Society* 23(7–8): 39–50.
Kittler, F (2010), *Optical Media*, trans. Anthony Enns (Cambridge: Polity Press).
Krämer, S. (2006), 'Cultural Techniques of Time Axis Manipulation: On Friedrich Kittler's Conception of Media', *Theory, Culture & Society* 23(7–8): 93–109.
Lethen, H. (2002), *Cool Conduct: The Culture of Distance in Weimar Germany*, trans. D. Reneau (Berkeley and Los Angeles, CA: University of California Press).
Manovich, L. (2002), *The Language of New Media* (Cambridge, MA: The MIT Press).
Münker, S. and Roesler, A. (eds) (2008), *Was ist ein Medium?* (Frankfurt: Suhrkamp).
Peters, J. D. (2010), 'Introduction: Friedrich Kittler's Light Shows', in Friedrich Kittler, *Optical Media* (Cambridge: Polity Press, 1–17).
Pias, C. (2009), 'Time of Non-Reality. Miszellen zum Thema Zeit und Auflösung', in A. Volmar (ed.) *Zeitkritische Medien* (Berlin: Kadmos, 267–79).
Sobchak, V. (2011), 'Afterword: Media Archaelogy and Re-presencing the Past', in E. Huhtamo and J. Parikka (eds), *Media Archaeology* (Berkeley, CA: University of California Press, 323–333).
Spieker, Sven (2008), *The Big Archive: Art From Bureaucracy* (Cambridge, MA: The MIT Press).
Vismann, C. (2008), *Files: Law and Media Technology* trans. Geoffrey Winthrop-Young (Stanford, CA: Stanford University Press).
Volmar, A. (ed.) (2009), *Zeitkritische Medien* (Berlin: Kadmos).
Winthrop-Young, G. (2006), 'Cultural Studies and German Media Theory', in G. Hall and C. Birchall (eds), *New Cultural Studies* (Edinburgh: Edinburgh University Press., 88–104).
Winthrop-Young, G. (2010), *Kittler and the Media* (Cambridge: Polity).

6

Canonicalism and the Computational Turn

Caroline Bassett

This chapter considers the computational turn in relation to some of the diverse frameworks through which digital artifacts and practices, taken separately or explored in various configurations, are being defined, categorised, and claimed for various disciplines, sub-disciplines, anti-disciplines, or academic fields; for this tradition or that. In this process of course not only the artifacts and practices, but also the frameworks themselves, are being reconstituted. If the latter are rendered computational in various ways, the former are hacked into shape, rendered fit, or made amenable and suitable for certain modes of analysis. This kind of work might thus redefine conventional takes on computation and its (cultural, social, economic, aesthetic, material) significance, replace the traditional object of enquiry within a particular field with its computationally transformed upgrade, and relocate the field itself so that it extends across new terrain – or operates in new dimensions.

All of these activities make a claim, a play for ownership of the exploration rights, a play for position on an adjusted field, a demand that the re-organised field of enquiry follows a chosen ground plan, an insistence that *this* is how such an artifact should be investigated or how its relative qualities should be taken into account. In this article these claims are explored as they are made through the past, in the name of the game, in terms of literary dominion, and through a double-sided demand for software empiricism and code literacy.

Many of these claims are not fully acknowledged as claims. But to declare a research framework 'appropriate', to declare that the real or important question concerning technology is *this* not *this*, to define the 'right' scale and level for enquiry, to determine language(s), to define appropriate tools for enquiry, to taxonomise and to create taxonomies, is, as we know, to make a disciplinary claim. And here I refer both to the broad Foucauldian sense in which discipline might be thought, as well as to its narrower deployment in relation to university disciplinarity or interdisciplinarity where claims around knowledge and its categorisation take a specific material and symbolic form.

Of course the two disciplines are connected: claims being articulated in theoretical or speculative register, through critical interventions, or through material artistic practice, play out within the material political economies of learning institutions. In particular the invocation of the digital humanities, at least in the United Kingdom, often signals the start of a territorial scuffle between traditional humanities subject areas, or traditional subject couplings, this despite the fact that many of those involved share a feeling that a more radical re-shaping is required – and are also unconvinced that the digital humanities can provide it. The objects and practices the digital humanities collates often need rigorous pruning before they conform to the prescriptive coupling of computerisation and literary values that the latter term sometimes.

There is always the hope (or the fear) that even such restrictive economies might produce more radical transformation than had been anticipated: the question of mutual influence, even the possibilities of various reverse takeovers, are significant factors to take into account here. Bound into this traffic is the question of delegation (see Latour 1992, 1996) – of what else (human and inhuman, material or symbolic, desire or anxiety) may be imported through these mutual but asymmetric incursions; of computing into the humanities and (less) of the humanities into computing. And here it is the capacity of information technology to operate, or be operated, as a delegate of neo-liberalism, carrying its values through a process of dissimulation that plays on the visible rather than deploying concealment, that is of striking concern. After all, the expanded address of the digital work, which emerges as result of its material alignment with the substrates held central to the dominant values of digital economy, can mean it appears – and work on it appears, and the discipline that owns it appears – to be 'worth more' than what came before, for instance worth more than scholarship based around disciplinary investment in an old technology or in a more traditional text (already in part a remembered object). The linkage between disciplinary enclosure and debates around (value and) intellectual property is clear – and it is worth noting that knowledge rights are considered as rights only when they generate profits in the new world of intellectual enclosure of the twenty-first century, as Ashley Dawson points out (2010). At any rate, in the United Kingdom at least, the current vogue for digital humanities (it might often be more accurate to call it a desperate lurch than a voguish stroll) sometimes looks like a fetish as much as anything else. And one twist here is that the fetish may not replace a *lack* of connections already being made. It may rather – and increasingly perhaps – tend to smother those that do not function to align the computational, and therefore re-align the humanities, with the market in the required way. It should also be noted that smothering is a murderous act[1] that provides its own cover.

Convergence and simulation

The continued existence of small worlds in the academy (see Selzer 2011) should not be a surprise. But the fact that their boundary defence should be most rigorously pursued around a series of cultural objects and practices that emerged as the result of various convergences, that are recognised as boundary breaking and flexible, that, as a consequence of their materiality, might be said to provoke and encourage forms of slippage and traffic, has a certain irony. Digital media in general is characterised by its propensity to link, connect, join, and translate between forms, to break and re-make boundaries, including those between genres and forms, text and practice, and between different media streams holding various forms of sense data. The MP3 player, designed to transport music, is a paradigmatic example of this, as Jonathan Sterne has pointed out (Sterne 2006). Elsewhere I have suggested that this promiscuity might indicate or begin to provoke the prioritisation of a certain sonic aesthetic in contemporary culture – one that might find expression not only in auditory but also visual and haptic form (Bassett 2011).

The scent of kinesthesia (when one sense becomes another) invoked here brings to mind that other (connected) characteristic of new media, which is of course its ability to simulate – and this complicates the landscape given by convergence and the ways in which it might encourage disciplinary dissolution or re-making. Marshall McLuhan observed that old media becomes the content of new media, and Bolter and Grusin, along with many others, considered this in relation to the re-mediatory qualities they discerned in digital media formations (1999). Remediation is often understood to entail the *fragmentation* of older systems, the break up and re-use of older genres, forms, uses, and practices, but its logic may also be turned around in various ways. For instance, if the Internet can make the media activity (including interpersonal interactions and performances) it carries (old media as the content of new) look like (simulate) the old world of text, why not explore it within the frameworks developed to explore text, why not remain within, or rather bring this artifact within, the grounds of the literary – even the covers of a book? Or, if life is now permeated by the digital to the extent that it is fully mediated, so that there is no ground zero of mediation, as it was recently put, why not assume that screen action is now real-world action – that all activity is simply real.

Through the dissimulations of simulation, the social sciences and the arts and humanities can more feasibly retain a traditional division between living subjects versus textual research.[2] Kinds of simulatory reversals might allow for a certain re-appropriation by traditional disciplines, or perhaps it is more useful to say a certain re-incorporation of the new into traditionally established

disciplinary fields. But that isn't to say that these fields remain the same, since in this process research 'objects' (as construed by disciplines) and the disciplines that construe them, are also silently re-configured, perhaps until nothing remains of them that is the same but the name. Film Studies was always about the televisual as well as the cinematic image. Media Studies was always as much about medium as message, experience as well as representation, gaming as narrative. Of course in part they *were* 'about' those expanded objects, but largely they were not. In these disciplinary war games memory is short. I am aware of the over-schematisation of what I am invoking here, but distinctions and trajectories emerging from the diverse and sometimes conflicting effects of convergent and simulatory qualities of digital media pertain. It is useful to note, however, that even allowing for the comfort simulation provides (it is still a text; it's just people), there is a growing sense that ethical frameworks developed in various disciplinary conditions do need rethinking to handle new kinds of computationally informed projects and new kinds of computationally informed environments what was a 'specialist' discussion for those studying digital questions has become a more broadly considered topic.

This chapter explores some of these ambiguities, not with the intention of declaring disciplinary war (not least because I am myself not entirely 'at home' in an arts and humanities school), nor of demanding a dissolution of the disciplines, or a statute of limitations for canonicalism (which I conclude will itself always be frustrated as well as encouraged by new media's simulatory possibilities and its protean development; something its best proponents often recognise). I do believe interdisciplinary approaches are intrinsic to digital research, but recognise that interdisciplinarity too may be operated as a mode of an appropriation rather than as a tool for connection, and certainly shouldn't be seen as disciplinary canonicalism's opposite.[3] Finding or building 'new media' a permanent new home (intersectional or not), would seem to me to be an exercise both pointless and endless – perhaps the former as a result of the latter. Canonicalism may be creative, it may be a defensive move (it creates somewhere else to go in the arid precincts of the neo-liberal university), but it is also one that can be very aggressive. The question is what would be, or what kind of canon might be, more or differently (critically) productive?

Below I open up this ambiguous terrain by considering a series of distinctive attempts to re-appropriate or re-classify aspects of the computational terrain, via the construction of taxonomies and canons, the definition of new fields, by proclaiming certain exclusions, or entry qualifications, or through the writing of authorised histories (or 'authorising histories' perhaps). The intention is to understand more about why this kind of work is emerging now, and to expose

some of the tensions between incorporation, expansion, and exclusion that classification raises.

Authorised versions

My students declare that 'these days' the Internet – by which they largely mean not the Internet but the platforms they use[4] – is interactive. They compare this new Internet to the old Internet, which was, so they say and confidently believe, 'one-way'. They make their claims in relation to Web 2.0, a classification that for them[5] defines what the Net is now compared to what it was then, this despite the fact that Web 2.0 is, at least in part, a nomenclature that pulls together a set of technologies and platforms that evolved in the 'old' Web. Ten years ago the same debate was had, using essentially the same terms, but at that time passive old media was television and interactive new media was the now 'old' Internet. Theorists of old new media, including notably Martin Lister, pointed out, somewhat vainly, that years of study of television – and its viewers – had moderated the couch potato view of the world, and so passive/active definition was therefore misjudged (Lister 1995). Contemporary claims that new media ecologies represent a decisive break with the recent past may thus be questioned; the salience of various relatively stable features of new media is recursively revived and re-understood.

However, the 2.0 formation, if not in reality dealing entirely with the new, does contribute to the production of a real change in perspective and provides for a moment both of projection (discussed below) and retrospection. There is an increasing awareness of the lengthening history of new media and of the hugely complex twentieth- and twenty-first-century history of computing. This might provoke both space for a moment of retrospection and an arena within which claims may be made. The historian Paul Edwards thus argues both for work to be done on computer history and acknowledges that this latter is too complex to be encompassed through any single approach (Edwards 2001). The doors are open for many forms of historiography, for instance for work based around broad historical formations, industrial innovators, or on technologies themselves.

Edwards' open call stands in contrast to the striking cohesion observable across a series of archaeological accounts of new media. Archaeological writing, considering the long history of mediation also explores the dynamics of innovation itself, for instance through concepts such as variantology (Zielinksi) which set out to explore the deep time and space of media. More or less informed by Foucault (1972) these histories begin with discontinuity, rupture, threshold, limit, series, and transformation, key dynamics of a mode of exploration based on a sense of history's fractured continuity.[6] Given this, something surprising

about these accounts is their cohesion, their tendency to circulate around a restricted series of figures and technologies. Insofar as these figures become canonical, origin figures and/or the origin technologies, for digital media this tends to produce, rather than disrupt, teleological accounts.

This is accelerated perhaps by the informal but common categorisation of new media archaeology as a subsection of new media history. This categorising defines the technologies and individuals that are the subject of these histories, *as computational*, before the act. Media archaeology thus threatens to be undermined, as a mode that seeks not to reveal history but to trace fragmented connections, partly by the shifting framing contexts within which it is placed. Through this placement, confounding the sense (or spirit) of archaeology as productive, these works come to suggest/be read, sometimes despite themselves, as concerning the revealing of origins, rather than as constructing possible archaeologies. This is one of the ways in which the turn to media history may thus itself operate canonically – and it is useful to note that it occurs despite the computationally influenced shift in distribution, which might imply works less easily drawn in under headings that constrain them.

Finally, I want to draw attention to another underlying issue of categorisation and computationalism here, and that concerns a certain blurring between the hazard of the retrospective determination (what came to seen as the inevitable precursor of an inevitable outcome) in archaeological enquiry in general and how this might play out in relation to questions of technological determinism. To work with an analogy here it is useful to turn to Lewis Mumford's work to define series of eras by the technology that produced them – glass, for instance, opens up life to light, and Enlightenment emerges.[7] Mumford linked each era to its concept technology, and declared each technology a prime mover (1946). My sense has always been that Mumford was aware of the constitutive force of the model he produced, even as he argued for the determinate force of technology upon which it was based. Thus even here, where a strong (the strongest) case is being made for technology as determinate (as prime mover), there is a realisation that what is made is partly 'made' through a process not of material alteration, but through the power of taxonomy itself. History has been explored through the optic of glass, but also by cod, or salt, or longitude – and in the latter cases claims are not based on the prime mover status of the chosen object (fish, longitude), but rather on the basis of the organisation that a particular figure produces. Taxonomy taxonomises as Foucault told us, invoking the famous instance of Borges's list, including the stray dog and animals belonging to the Emperor. Moreover, it never does so 'naturally', nor I would suggest, entirely technologically. The risk of the archaeological approach in relation to technology, it might be said, is that there is always the risk of trumping contingency with technological determinacy. Where this occurs,

archaeology risks operating in confirmatory mode (the 'this is what is was going to be' that comes from its acquired name as Internet early history): an authorised version of a given past.

You and whose army? Games studies against narrative

A well-known battle concerns the question of digital productions and form – games or narrative, database or story, narrative versus pattern. The terms of the oppositions vary, but these connected debates over form have disciplinary consequences. Notably, in a peculiar recursion, the question of games or narratives becomes, like the game itself, an apparently rarefied space to argue out a set of questions relating to more material divisions and filiations. Thus when Espeth Aarsen asks what has media studies done for us (see *Gaming* 1.1 – an intervention but also in a sense an FAQ or a gaming 101), he is recapitulating, in disciplinary terms, an argument he has run at the level of the game: what has narrative (which he reads as representation) done for games (read as action)?

Intervening in this debate, and once again consciously referencing the contemporary moment as one ripe for retrospective analysis of the field so far, is Marie Laure Ryan, the veteran analyst of narrative and/in its computerised forms. In particular in *Avatars of Story* Ryan looks back on 15 years or so of new media production, and also at the sometimes bad-tempered wrangling between some of those studying it. The focus is on debates between narratives and gaming, and Ryan engages directly with those who wish to develop a very separate sense of 'games studies' (notably Espen Aarseth; see above), the latter making their case on the twin grounds of narrative's (alleged) predominance as a critical framework for analysis in the field of media, and its (declared) incompetence as a tool for analysis for the game. The debate between narratology and ludology has often become a symptom of a divide between gamers and literary scholars, and between gamers and media studies scholars. It is framed, at least by one side, in computational terms – in that gaming is set up as the apogee of the 'new', the latter operating here both as a test point for distinction and as a synonym of the properly computational, with narrative framed as fading continuity, essentially an old medium become content of a new medium – the yellowed paper of the novel thinly disguised in its newly rekindled form.

Theorists such as Jsper Juul have been consistently hostile to narrative approaches to new media, arguing they over-egg the narrative moments in new media formations in which narrative is incidental or at least subordinate to other more algorithmic logics. Juul (2001) was one of those active in staging a series of 'narratology versus ludology' debates, in the first wave of the Web.[8] Ryan's way through this tangle is interesting. First, she recognises

that judged by conventional standards the ludologists do not need to be undertakers because narrative, of the traditional interactive kind, is failing all on its own; despite the early fanfare, engaging with Interactive Fiction (I.F.) has always been largely academic pursuit (a question less about high or low culture than might at first appear. It may be related as much to the failure of the CD-ROM platform, which, it was once presumed, would 'mainstream' I.F. along with other forms of consumer infotainment content).[9] Second, she goes on to argue that to understand digital 'stuff in narrative terms requires rethinking narratology and as a first move rejecting gamer-derived descriptions of 'what narrative is'. The latter, it is argued, are reductive and superficial, relying on definitions of narrative pared down to a skeletally thin form based almost entirely on a few highly selective lines from Gerald Prince's *Narratology: the Forms and Functions of Narrative* in which drama is disqualified from narrative on the basis that the latter requires a narrator recounting to a narratee, while in drama events 'rather than being recounted occur directly on stage' (Ryan 2006: 184). This restricted definition of narrative operates to confirm the opinions of those who invoke its illegitimacy for new media platforms – since the interruptions integral to interactive forms of narrative would place it in the category of the direct event. If computers are in any way 'theatre' (the reference is to Brenda Laurel's well-known analysis of the Internet's first wave), then they can't be narrative.

This caricatured account of narratology, deployed as a decoy by the gamer armies, is firmly set aside by Ryan, leaving her free to reconsider structural narratology as a possible tool to understand narrative. Thus, staying more or less within this model she seeks to develop a model of narrative able to integrate that combination of 'top down' design features and actions 'from below' that typically constitutes new media narratives. Such an integration would, Ryan declares, constitute a 'miraculous convergence' (2006: 99), a phrase that might allude not only to its apparent impossibility within the grounds of traditional narratology, but also to the contingent aspect of this convergence. In the essentially cognitive template proposed, the langue/parole pairing is reconfigured as a dynamic operating between 'structures of choice' (textual architectures) and 'modes of user involvement' (types of interactivity enabled) (2006: 100), where questions of priority and determination are reworked and varying degrees of freedom afforded to either side of the pairing. These operations suggest a series of axes – internal/external and exploratory/ontological – across which narrative types may be mapped and their dynamics categorised. Various modes of narrative are thereby produced and are classified as simulative, emergent, and participatory. All enable the emergence of a more or less recognisably coherent 'story-time' within which a desired 'integrity of narrative meaning' can be retained (2006: 100).

So here is a new model of story – but one that, it turns out, can explain narratives in the wild that are not so new at all. The twist in Ryan's argument comes when this model of story, used to reconsider interactive narrative as this has conventionally been understood (e.g. early hypertext to Web 2.0), is used to rethink an *existing* form of storytelling – not that of the novel but that of *live* television, a format that breaks down that division between world and text that is at the heart of narratology as a model in literary productions. One way to get at how narrative can work on computer platforms says Ryan (and I would agree), is to shift the focus away from literary productions and towards 'life'. Televised sport, where what is thrown into the tale is bound back in real time by commentators who reach before and behind the ball (commenting retrospectively, prospectively), bind the game into the tale, is invoked as a beautifully worked example of this.

That Ryan finds coherent narrative in a game is nicely ironic, given her tilting at games scholars' attacks on narrative. Moreover, her argument makes it clear that the supposedly miraculous convergence of narrative and the interactive form, that which appears necessary if narrative is to flourish in new media platforms given that this is the general mode of their use, is a convergence based on forms of time organisation and blending that already occur in a well-known form of old media. This is not a rare form at all (which the miraculous might be expected to be) but rather is miraculously common – both often found and easily accessible. Rethought this way, narrative might also be common in new media landscapes, particularly if it is listened for in the less rarefied zones than those represented by I.F. as a literary project.

It is useful to stress that the defence of narrative, sketched above, is a *computational* defence. It centres on recognising the degree to which computers are able to extend the operations of metalepsis – traditionally operating between the diegetic and extra-diegetic worlds but remaining 'in the tale'. The new narrative stack exceeds the symbolic and so metalepsis may be rhetorical and also ontological (as the live game model and its catch-ups show). Interestingly, Helen Thornham produces something like the same operation, although she reverses it, in her consideration of game play as ontological narrative (Thornham 2011), a study that draws on connections explored between Ricoeur's explorations of narrative activity and life history developed in my own work (Bassett 2007). Following Ricoeur's model, narrative is a resolution in time, a way in which humans make sense of their time in the world. It can thus be argued that not only the tale, but what the tale is, its form, emerges as a result of a particular historical, technical, and cultural constellation, that is, as a result of material culture and social struggles (Bassett 2007). This more critically orientated approach offers a different route into considering the question of the story-time and its coherence in the life-time. But via both routes

the point carried is that narrative itself might be transformed and re-forged, and might thus remain a meaningful category, in new media circumstances.

Central to this transformation, the core problematic, is the question of a new relationship between symbolic and 'real' forms (rhetorical and ontological metalepsis). If one way to trace this out is to consider the complex relationship between the narrative identity and the narrative form, it is salutary – and a measure of the artificiality of distinctions between the two forms – to note that gaming actually addresses the same issue, coming at, for instance, in relation to what Juul calls the half-live quality of the game (Juul 2008). Not games studies, but the disciplinary bid that games studies makes, essentially an isolationist bid, made in part on the modernist basis that the game form crystallises the abstract logic of its architecture, is rendered problematic when the *computational* quality of other activities is underscored. Games studies has many good reasons for its caution and defensiveness, but the computational turn will make connections, and will tend to transform rather than render obsolete. The mode of attack on narrative, in fact renders, not narrative, but gaming itself, more narrow; it fails to grapple with ways in which the relationship between gaming and play, and the fields of play and the models of the game, may be re-approached in relation to the computational. The computational turn thus, while it appears to demand the prioritisation of particular forms, might also be used to challenge particular exclusions that of narrative (in the gamer lexicon), and particular hierarchies (that of gaming over narrative), partly by recognising that the forms themselves, 'gaming' and 'narrativity', are subject to processes of technological transformation.

Finally, a caveat: thinking through narrative in relation to gaming's claims produces a consideration of narrative that focuses on metalepsis as the bleed into 'life'; a different way to come at the distinction between new and old forms of narrative would be to consider how it operates not through increased connection, but through the capacity of new media to provide distance – it is this that provides the scale and perspective necessary for the kinds of distant or external reading that Franco Moretti has explored (2009), and for consideration of new forms of narrative patterning which may operate at vast scales.

Canonicalism (and cannibalism?)

Electronic Literature has been defined by a committee as that form of literary production that 'takes advantages of the capabilities and contexts provided by standalone or networked computer(s)'. Noting this definition Katherine Hayles seeks to improve on it, launching a project whose goals are to 'survey the entire field of electronic literature' (Hayles 2008: ix), identify 'the major genres and

the central theoretical issues', and explore 'new horizons for the literary' (2008: ix). This definition, expanding the horizons as well as altering the material of what is found in homelands of the terrain, is considerably more flexible than the committee version. It is also very ambitious. And it is set out in a single work that sets out to be a definitive survey of E.L. so far, a book that clearly aims to prescribe a new canon: if there were any doubt about this, it is dispelled by the DVD collection that arrives with the print edition. Like a Norton anthology here is what 'should' be read (or used) and here is what will tend to be read (or used) because it is so collated: the massy wheel of canonical taxonomy turns – and in turning makes itself central.

The works assembled in this collection certainly include some unexceptional choices. Hayles confirms rather than inaugurates hypertext works such as *Afternoon* and *Frankenstein*, already part of a nascent canon (as evidenced by their inclusion – by citation and interrogation in a slew of other collections).[10] However, the remit of the literary work is extended here to include media-rich pieces produced for lab-based immersive CAVE (Cave Automatic Virtual Environments) experiences on the one hand, and dispersed locative productions designed for mobile platforms on the other. It is useful to consider the extensions to the literary that are made in this canonical gesture, and to explore the principles behind them – and to do that, with some sense being open to accusations of textual bias, below I trace out two key concepts in the supporting book.

Hayles' starting point is that she is mounting an enquiry drawing on the 'rich traditions of print literature and criticism' (2008: 30) and is thus seeking to understand the specificity of networked and programmable media, and to explore its ramifications in the context of literary work and literary values. Extended grounds suitable for literary enquiry, as well as the literary work itself are thus being (re-)mapped here. This extension is justified in a series of ways, one of the most compelling once again that the works being brought in have much more to do with conventional works than might at first appear. On an account of the transition from old to new media (e.g. print technology to computer technology), Hayles argues that the extension of the 'new materiality' of informatics into the zone of the literary is well underway – many literary objects and practices are already largely digital. Decades of transformation (of an industry, of a craft, of materials and techniques) lie between the production processes historically associated with the book (those of moveable type) and the contemporary situation in which the printed book remains as the pre-eminent literary format but is visibly on the cusp of partial deliquescence into a digital format. The result is that there is no old and new media, at least in the sense that, despite the rhetoric of the new surrounding electronic literature (and devices such as Kindle), books appearing in traditional bound form are already mostly digital (2008: 43).

Printing out, it might be said, is simply one way to view what is already a digital text.

The peculiar turn in this argument is that Hayles asserts that this shift is largely unacknowledged, that it is even a kind of a secret. Simulation, it might be said, masks the computational and in doing so also masks the convergences digitalisation processes silently inaugurate in registers beyond the technical. Even so, from the perspective of media studies, or from that of those engaged in exploring the history of the book or the transformation of specific print genres (e.g. the encyclopedia), this assertion is very hard to give credence to. Attention has been paid to the visible and recorded transformations in the print industries, to impacts on production shifts brought about through digital technologies (see Cockburn, for instance, for long-standing work on the industrial consequences of some of this), and works directly considering the reconfiguration of the humanities and cultural studies through a shift in cultural materials are, after all, not thin on the ground, and are found in public as well as academic zones.

In suggesting that this change in material is 'secret', Hayles can thus only be understood to be addressing her remarks the restricted audience of traditional humanities. Essentially she is calling for a shift in the belletristic tradition which, she asserts, has seen computers as 'soul-less other' to humanistic literature. Somehow then, the question of soul (and who or what has got 'soul') is mixed up, not only in a debate about what is new about digital making as a new form of cultural production, but in a debate that can only be understood when it is framed in disciplinary terms. Here it is useful to turn to Hayles' declaration that as a writing machine the PC is mightier than the pencil – and that the difference between the two is found in 'the degree to which the two technologies can be perceived as cognitive agents' (2008: 57). The enhanced cognitive 'agency' of the computer leads to new forms of partnership – or 'partner' ship (2008: 58) since these are not envisaged as equal – between humans and computers.

The obvious question, and one addressed by others, then concerns what form these partnerships might take. As others have done before her, Hayles frames this in terms of a continuum marked at one end by the media philosophy of Mark Hansen, for whom embodiment gives meaning, and at the other by Friedrich Kittler, for whom the media and the forms of perception and interpretation they organise give us the world and are therefore viewed as 'the proper locus of inquiry' (2008: 87).

Hayles, routing between these poles, argues that electronic literature is neither made in machines, nor made meaningful only by way of embodiment: essentially electronic literature arises as the outcome of cognitive *interaction*. She thus argues, in a metaphor that joins the layered operating systems of the computer with processes of human cognition, that 'cascading processes

of interpretation that give meaning to information are not confined solely to human interpreters as Hansen argues, but take place within intelligent machines as well' (2008: 102). Developing this model, Hayles draws on Bernard Steigler's consideration of the (originary and ongoing) co-evolution of humans and machines, which would suggest that 'partner'ships are nothing new, but that the relative capabilities, symmetries, and dis-symmetries involved in them might take specific form in relation to new materials.

This is explored in part through recent developments in neuroscience – (particularly considerations of plasticity). Arguably the parallels pursued here (the brain as reprogrammable machine) are sometimes strained, but do produce suggestive insights. Notably however – and this gets us back to the question of soul, and whose soul, or what soul might be found in newly soulful computers – Hayles deploys the argument that the 'void within' computers (what cannot be seen or understood of silicon processes) can set up a mirror exposing the 'void within' ourselves (our ignorance of the workings of our own clay-based consciousness). This is a move that might provoke a reappraisal of the scale and forms of enquiry electronic literature might materialise – and reappraisal of the degree to which traditional divisions operate. For instance, those between the work and the life, and/or of course those between the soulless machine and its calculation and the human's soulful cognition. One reason I find this intriguing is that it recapitulates at the level of literary material, the content of Ishiguro's *Never Let Me Go*, where clones perhaps reflect humanity's own ignorance or failure to fathom the human condition; a work that might be critiqued for its unqualified humanism, and/or applauded as a kind of critique of medical cannibalism, but also one which is based on the temporality provided by the pre-given if as yet unacknowledged horizon, the world of the known secret.[11] Viewed from these new perspectives, that is, viewed in relation to questions of 'soul', or at least cognitive co-evolution, and viewed as a partnership that might entail new crossovers between human and machine, electronic literature might be reframed: rather than considering its success or failure as an offshoot of (traditional) literature, based on the division between the literary and literature, the book and the life, it may now be seen as a site where the human–machine dynamics underpinning much of contemporary everyday life (digital exchange) can be explored in new ways partly because here is the site not of their symbolic rehearsal (takes place inside Ishiguro's text) but of their material interaction.[12]

Forms of social power?

If the canonical move made here extends the grounds of literary endeavour, it does so partly by extending what counts as the literary work, or as a literary operation – and although Hayles' move does not equate to Ryan's consideration of ontological metalepsis (the leak into life itself), there are parallels to be

drawn between this and the tighter cognition incursions involved in the cognitive partnership she proposes (the PC rather than the pencil). At any rate the kind of coupling Hayles explores raises questions not only about what might be brought in through such an expansion in traffic – but what might be left behind.

Notably these newly materialised performances, these partnership productions, might raise questions about the location and workings of power. This, avowedly, is an issue for Hayles in this work, but nonetheless is given very little attention. Hayles, in fact, notes that 'complementing studies based on the materiality of digital media' are analyses that 'consider the embodied cultural, social, and ideological contexts in which computation takes place' (2008: 36). It seems acceptable that social reality happens 'somewhere else' (2008: 133), largely perhaps outside of the body–machine loop set up to contain the literary worlds of which Hayles writes. One way in which the project of the digital humanities is problematic might be found in the contradiction here – between ruthless policing of boundaries on the one hand and a geography of expansion and transformation on the other.

Software studies as the expansion of the tactical?

Hayles certainly retains a sense of the literary project and is clearly at the forefront of defining a digital humanities project – even if the human in the work explored above and elsewhere is qualified. Others feel the disciplines within which such concepts are cradled have reached their limits. Neil Badmington, writing on the post-humanities, gives a useful steer on this (see Badmington 2006) as does Matthew Fuller, whose multi-authored *Software Studies/A Lexicon* collection is the final new media programme explored here (Fuller 2008). Fuller's handbook, essentially a canon-builder, begins by setting itself up against the 'cookie cutter' of the arts and humanities, roundly declared incompetent as tools to grapple with the daily fabric of contemporary (highly technologised) working lives.

In fact, the proximate target is media and cultural studies. Fuller's goal is to move beyond the representational fetish of media studies and associated approaches, since – at least as he views them – these approaches can recognise that there are things beyond text, but can get hold only of their shadows.

With the sense that more is needed, Fuller locates the field of software studies as a supplement to literary studies (said to provide some tools, definitions, and concepts) that also draws on 'some of the key standard objects of computer science, programming and software culture' (2008: 1–11). Software studies claims that an approach capable of exploring digital operations, structures, languages and their intersections and connections directly is now required;

the contrast is with approaches aiming to expose the concealed logic of software through examination of the genres and forms it supports – by way of its symptoms perhaps.

The nexus that emerges is distinct from both. Once again, a section of the computational caravan turns off the road, finds a field, and sets up an encampment. So what are its values and what is the attempt?

What I want to suggest here is first that the format of the project *itself* makes a certain taxonomising claim. Designing the project as a *Lexicon*, Fuller avowedly drew on Raymond Williams' *Keywords* (Williams 1976), but it is also useful to think of the *Lexicon* as a List; certainly, if, following Alison Adams' *Lexicon* contribution, the list is understood as a code structure that allows for unfinished business (Adams 2008: 174). Contributors are enjoined to look at what software *patterns*, to attend to its operations and its materiality, and to attend above all to how it speaks and writes. The result is an entry list whose taxonomic categories are once again proto-Borgesian: those tools that are suggestive of connection, those languages that invite retooling, the interface viewed at a particular scale, a codework, a 'rhetorical' codework, 'Codecs', 'CVS', a coding epithet that might imply efficiency and aesthetics ('Elegance'), a disquisition on system event sounds, entries on some of the basic categories at issue including 'Algorithm', 'Language', 'Code' – and a Lev Manovich piece considering the import-export 'business' (Manovich 2008: 119) that constitutes the latter three entries' basic interactions. In different ways these entries tackle software and its operations. Elegance aside, the *Lexicon*, and the work of its contributors, might be compared to Perl perhaps, which it describes as a programming language with a status halfway between assembler and fully natural languages enables a form of coding defined (affectionately) as 'mostly fast, and kind of ugly' (Cox and Ward 2008: 207); a description that gets at the provisional aesthetic of the *Lexicon* and its desire to lash together some useful tools that are capable of doing some work.

In fact, despite the provisional style and apparently modish eclecticism here there is much that marks a coherent and systematic turn. The *Lexicon* lays out a field, provides within it the values to make it operative, and also claims the game – software studies – is worth the salt. The attempt here is the construction of a mode of study that, instead of starting with a recognised form of cultural production (e.g. literature or narrative) and re-materialising it, turns what were once understood as the supporting dimensions of digital culture to the fore, and takes as the central problematic the cultural operations of software, and in particular the relationship between language and code. It is striking that, once considered in this light, many apparently arbitrary and jarring swoops in scale or subject become comprehensible: they operate at a scale, and with the priorities, that software provides.

Formalism and inexactitude?

In the place of re-doubled cognition and new partnerships, here the crux is the tension between the fierce formalism of code and the inexactitude of human practices and of natural language, a tension that lies at the heart of software as a cultural production. This constitutes the key problematic of *Lexicon*. Once again convergence is at issue. This time, however, the aim is to understand how this might operate through an exploration focusing on software: its processes, its actors, its functions, and the respective powers and limits of the modes within which various facets of software act – and interact, since this perspective does not imply a neglect of interaction or a neglect of the question of the location of the working out of the significance of that interaction. What it does do is re-focus the project to re-think, through a newly informed sense of what software is capable of effecting, what actors and what kinds of acts are possible – and perhaps whether it is convergence or its avoidance that might in some way be miraculous.

The field as laid out thus includes at one end Kittler in the *Lexicon* he contributes an entry on 'Code' declaring that 'code – by name and by matter – are what determine us today, and are what we must articulate if only to avoid disappearing underneath them entirely' (Kittler 2008: 40). His argument is that expansion of computerisation into everyday life increasingly 'puts code into the practice of realities' (2008: 45), and does so even as its incommensurability with natural language remains. The implication is that language will be set aside or will cease to matter and that the symptoms of this are already appearing: 'the programme will suddenly run properly when the programmer's head is empty of words' (2008: 46). This produces an insoluble dilemma that might only be resolved by radical means; what these might be is less clear – silencing particular forms of natural language voluntarily perhaps, or finding new ways to speak – both may be suggestive in relation to recent work. (It also produces a strong argument for machinic literacy; only those who can at least get near to such machine talk can understand what is going on, perhaps.) The majority of the contributors to the *Lexicon* are less mordant. Marked contrast to Kittler's fear that natural language will be muted or lost it is asserted by Montfort that source code itself is 'human-read and machine interpreted' (Montfort 2008: 198), so that putting code into the practice of reality does not imply that all human activity moves onto the grounds of the machine or that all human language is overtaken.

Codeworks

In the *Lexicon* the project of software studies might be summed up as an injunction to mind the gap, to explore the relationships between code operations and operations in natural language, to find, exploit, and create gaps for others – and

also to think rigorously not about the packaging of software (the contents, questions of representation – and their 'evils' or 'goods') but its material operations and processes – also perhaps in relation to their evils and goods. It is not surprising then that the codework, a literary production that operates in two languages simultaneously, being both executable and readable, emerges as a sacred object in the *Lexicon*. Codeworks speak twice, once in the lexicon of the computer and once directly to 'us', in a language we can understand. Graham Harwood's *London*, a remixed Perl version of Blake's *London* with its critique of industrialisation, is one example of this genre that is invoked here by Geoff Cox and Adrian Ward (2008: 208). It works by exploring the totalising potentials of computing as a technical proceeding which may, as Harwood puts it, reduce people to data (Harwood cited in Cox and Ward 2008: 207) as the first line – 'Child name if known else undefined' – begins to indicate. The sting in the tail, of course, is that it is software that is employed to speak of this process.

Codeworks, despite being made code, are not industrial code objects. But for Fuller, at least, to destabilise a conventional understanding of the connection between machine and natural language materialised through use and at the point of interaction – which emerges as much from the market as it does from technology itself – is also to destabilise a reading of software's potential as market-given. Fuller's critical starting point, his software studies credo expressed genealogically, is that:

> [A]t the point of software's legal reordering as a separate kind of entity, it became a commodity. ... This ... allows it to circulate in different ways, such as markets, while excluding others ... [but] software has always had a parallel genealogy including the amateur, academic, gratuitous, experimental and free. (Fuller 2008: 3)

If there are ways to read the operations of code (and ways to curate or write or do code) that do not conform to a market logic, this is not because software is ontologically 'free', but because it never has been an uncomplicated progeny of the market, but contains and materialises a series of more complex interactions and contradictions. Fuller's goal perhaps is that, through the revitalising power of his software supplements, it might be possible to trace another route through software's history (outside of/supplementary to the market route), to explore how the process of use (execution of code, interaction with users) produces more than the silenced world as coded output, as Kittler fears it does. For at least some of the contributors here software is techno-cultural politics.

The scale of this project however – the tricky slide from artwork to market, from tactic to strategic gesture – is worth thinking about. Software studies has a critical register which connects it to the earlier and more limited tactical media

project (see e.g. Lovinck and Fuller himself). However, the *Lexicon* certainly takes mainstream formations as its object of study and is thus distinguished from sub-cultural and activist studies of software cultures in scope, range, and ambition. There are interesting ways in which this line is walked. Fuller's computational turn demands a personnel shift, as well as a tighter focus on code. The job requirements for making the grade as a software studies person are possession of a 'two-way intelligence'. Declaring that software 'makes more sense understood transversally' (2008: 10), Fuller argues that the capacity to engage with code-based production and to engage with technicity of software through the 'tools of realist description' requires certain technical skills, alongside skills that come from disciplines at some distance from computer science and the contained project of realised instrumentality it prioritises (2008: 9). Less, perhaps, is required of technology, which is often portrayed here as more innocent than its users, and so, by reverse osmosis (from machine to human) technicians or computer scientists do not necessarily need to demonstrate the responding critical 'bent' in their work to expose various aspects of code's workings. In fact there are markedly fewer of the latter. The contributors, the doubly articulate elite, are for the most part cultural theorists, artists, writers, and humanities scholars. However, even given this unevenness, the *Lexicon* operates through a mixed language of enquiry – though not with a mixed gender bunch.

Partly through these machinations – which enable a mode of expansion – which if they don't replicate, nonetheless find some parallels with *Wired*'s capacity to encompass, in its early years, all hopes – software studies could be read as tactical media's bid for a grander field, and as radically optimistic.

Canonisation: (blessed are the cloud-makers?)

The writing objects explored here all raise questions of procedure and problems of theory in digital media and do so partly at least through processes of categorisation. Which brings me finally back to a very brief consideration not of canonical moves and categorising strategies, but of canonisers and strategisers. And here I return to one of the original ground-makers, Richard Barbrook, who discerned in writings on new media a Californian ideology that faced a European dystopia (Barbrook 1995). This isn't a fair division, but it was a smart one, and, thinking about these canon-formers, there is something of a division between the somewhat de-politicised formalism of some of the key North Americans involved here (Ryan and Hayles) which is in striking contrast to the avowedly critical approaches of (UK-based) Fuller. What Barbrook didn't say at the time, although perhaps it was implicit, was that the dystopian faction had certain difficulty engaging with the materials of that which railed against. To me, the computational turn, taking on board

materiality, critically requires, demands, needs, to retain a critical vision – and retool it.

So, in conclusion, here I have explored some of the dynamics involved in the computational turn, and in particular have focused on questions of borders – and their extension; categorisations – and their work; and canonicalism – and its claims. The moves considered here can be understood as moves to produce new taxonomies of new media. Arising in response to the extant body of work, they break divisions, as well as set up new ones. These categorising gestures (this is literature; this is code) require and invoke particular forms of engagement as appropriate – and disable others. In so doing they may also instigate disciplinary annexation bids – claims for the re-incorporation of what is perceived as new material into older disciplinary areas – or they may strengthen the case for new forms of post-disciplinary engagement.

In particular, consideration of the materiality not only of texts, but of the materialised engagements between bodies and machines that new media affords, might inaugurate new forms literary study – and they would be at some distance from Moretti's distant readings. However, the same dynamics might also signal the unmaking of a particular form of literature and the emergence of what (could be) various forms of a 'beyond text' or 'post'-humanities. This latter may not align with that other abused term the digital humanities. Indeed the fruit of the theoretical work considered in this piece might be that it provokes a demand to re-think, and, in material terms, what that term might entail or require.

Notes

1. Re-mapping as removal: a mode of stripping out. There is something concerning in the appropriation of situationalist tactics for methodological modeling (the instrumentalisation of the *derive*) by those studying human computer interaction, or the taming of (re-framing of) de Certeau's critique of commodification, Henry Jenkins and MIT where activity is valorised as mappable, joining in, making your mark, saying 'where you are at' when all about the opposite: the un-mappable marine immensity of submerged life.
2. It is useful in this context to note that this issue became one that much exercised those involved in Internet research, where the question of defining the in relation to texts or human subjects (raised elegantly by Kate O'Riordan and Liz Bassett for the AoIR in the mid-90s, and returned to recently at the OII), became attached to questions of (research) ethics, more broadly a question that had to be thought ethically Zylinksa.
3. Others agree. For instance Sadie Plant has argued that cultural studies exhibits a form of inter-disciplinarity that confirms rather than breaks boundaries. As a consequence it sets out to legitimate what is already known rather than exploring 'how and to what extent it is possible to think differently' (Plant 1996: 216).
4. This is why the Internet might be dead – as *Wired* recently proclaimed it was.

5. Scepticism about the usefulness of 2.0 is widespread (see e.g. *The Register* for an industry perspective).
6. The use of concepts of discontinuity, rupture, threshold, limit, series, and transformation present all historical analysis not only with questions of procedure, but with theoretical problems. It is these problems that will be studied here (Foucault 1972: 1).
7. Ann Freidberg's account of Windows as architectural components and metaphors, references this work – with the peculiar consequence that Microsoft comes to be central to a modern attempt at a certain re-enchantment of the world. It is the case that Bill Gates, of all people, was struck by the poetry of cables made of glass and sand, capable of carrying light (see *The Road Ahead*, 1996).
8. See also Andy Cameron's writing of the 1990s, which not only registered Cameron's doubts, but also the pessimism of professional multimedia enthusiasts/specialists about the prospects for the development of compelling tales on digital platforms.
9. As a product I.F/Electronic Literature certainly failed, but it also largely failed as a format. My take on this is that content mirrors the failure of material form. I.F. can operate on many digital platforms but it was designed with the closed world of the CD-ROM in mind. In splendid isolation, side-lined from the 'street' vigour of the Web, trapped in a world coded for infotainment, lacking the rigor of earlier movements' symbolic engagements with technology (for instance the modernism of the early twentieth century), and without the close-up 'artisanal' connection with digital material the also essentially avant garde digital productions such as the codework might offer (see below), it is, or at least was, stranded.
10. See, for instance, work by Jenny Sunden, Terry Harpold, and George Landow.
11. For the clones the known secret is that they live to die; for the humans (perhaps the rest of us) it is that they (or we) are medical cannibals.
12. This suggests a way in which larger narrative visuallzation projects (where the network, and the large-scale view of narrative patterning extends far beyond the end of the discrete text) might be re-articulated with the internal forms its 'dividual' parts take. 'Partner'ship works from two directions.

References

Aarseth, E. (1997), *Cybertext: Perspectives on Ergodic Literature* (Baltimore: Johns Hopkins University Press).

Aarseth, E. (2001), 'Computer Game Studies, Year One', *Game Studies* 1(1): 1–4.

Badmington, N. (2006), 'Posthumanities', in Clare Birchall and Gary Hall (eds), *New Cultural Studies: Adventures in Theory* (Edinburgh: Edinburgh University Press, 260—72).

Barbrook, R., and Cameron, A. (1995), 'The Californian Ideology', *Mute* 3 (Autumn): iv–v.

Bassett, C. (2010), 'Up the Garden Path: or How to get Smart in Public', *Second Nature* 2: 42—61. (http://secondnature.rmit.edu).

Bassett, C. (2007), *The Arc and the Machine* (Manchester: Manchester University Press).

Barbrook, R., and Cameron, A. (1995) 'The Californian Ideology', *Mute*, Issue 3, Autumn, iv-v.

Bassett, C. (2006), 'Cultural Studies and New Media: On Being Less Forgetful', in C. Birchall and G. Hall (eds), *New Cultural Studies, Adventures in Theory* (Edinburgh: Edinburgh University Press, 220–38).

Bassett, E., and O'Riordan, K. (2002), 'Ethics of Internet Research: Contesting the Human Subjects Research Model', *Ethics and Information Technology* 4(3): 233–47.

Bolter, J. D. and Grusin, R. (1999). *Remediation: Understanding New Media* (Cambridge, MA: MIT).

Cameron, A. (1995). 'Dissimulations: The Illusion of Interactivity', *Millennium Film Journal* 28: 32–48. (http//:wmin.ac.uk./media/vb/dissim.html).

Dawson, A. 'Introduction: New Enclosures', *New Formations*: 8–22.

Edwards, N. P. (2001), 'Think Piece – Making History: New Directions in Computer Historiography', *IEEE Annals of the History of Computing* 23(1): 88–94.

Friedberg, A. (2006), *The Virtual Window: From Alberti to Microsoft* (London: MIT Press).

Fuller, M. (2008), *Software Studies: A Lexicon* (London: MIT).

Foucault, M. (1972), *The Archaeology of Knowledge* (London: Routledge).

Galloway, A. (2004), 'Playing the Code: Allegories of Control in Civilization', *Radical Philosophy* 128: 33–40.

Gates, B., Myhrvold, N., and Rinearson, P. (1996), *The Road Ahead* (Harmondsworth: Penguin).

Grau, O. (2007). *Media Art Histories* (London: MIT Press).

Harwood, G. (1997), 'Interview', in B. Graham (ed.), *Serious Games* (London: Barbican Art Gallery, 38—41).

Hayles, N. K. (2008), *Electronic Literature: New Horizons for the Literary* (Notre Dame: Notre Dame Press).

Harwood, G. (1997), 'Interview', in B. Graham (ed.) *Serious Games*, (London, Barbican Art Gallery), 38–41.

Hayles, K. (2009), 'RFID: Human Agency and Meaning in Information Intensive Environments', *Theory Culture and Society* 26(2–3): 47–72.

Hermes, J. (2009), 'Media, Meaning and Everyday Life', in S. Thornham, C. Bassett, and P. Marris (eds), *Media Studies: A Reader*, 3rd edn (Edinburgh: Edinburgh University Press, 514–23).

Jenkins, H. (2004), 'The Cultural Logic of Media Convergence', *International Journal of Cultural Studies* 2004(7): 33–43.

Juul, J. (2001), 'Games Telling Stories? – A Brief Note on Games and Narratives', *Game Studies* 1(1). http://www.gamestudies.org/0101/juul-gts/.

Latour, B. (1996), *Aramis or the Love of Technology*, trans. Catherine Porter (Cambridge: Harvard University Press).

Latour, B. (1992), 'Where are the Missing Masses? Sociology of a Door', Bijker and Law (eds), *Shaping Technology/Building Society: Studies in Sociotechnical Change*_(Cambridge, MA: MIT Press, 225–58).

Lister, M. (1995), *The Photographic Image in Digital Culture* (London: Routledge).

Mumford, L. (1946), *Technics and Civilization* (London: Routledge).

Moretti, F. (2009), 'Style, Inc. Reflections on Seven Thousand Titles (British Novels, 1740–1850)', *Critical Inquiry* 36: xx.

Plant, S. (1996), 'The Virtual Complexity of Culture', in Robertson, Mash, and Tickner (eds) *Futurenatural* (London: Routledge, 203–17.

Ryan, M.-L. (2006), *Avatars of Story* (Minnesota: University of Minnesota Press).

Selzer, M. (2009), 'Parlor Games: The Aprlorization of the Media Mark Seltzer', *Critical Inquiry* X: 100–34.

Sterne, J. 'MP3 as Cultural Artifact', *New Media and Society* 8(5): 825–42.

Turner, F. (2006), *From Counterculture to Cyberculture: Stuart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press).

Thornham, H. (2011), *Ethnographies of the Videogame: Gender, Narrative and Praxis* (London: Palgrave).
Williams, R. (1975), *Television: Technology and Cultural Form* (London: Fontana).
Zielinski, S. (2006), *Deep Time of the Media* (London: MIT Press).
Zylinska, J. (2009), *Bioethics in the Age of New Media* (London: MIT Press).

7
The Esthetics of Hidden Things

Scott Dexter

> '... drawers, chests, wardrobes. What psychology hides behind their locks and keys! They bear within themselves a kind of esthetics of hidden things.' – (Bachelard 1994: xxxvii)

On the slip

Katherine Hayles observes, 'Along with the hierarchical nature of codes goes a dynamic of concealing and revealing that operates in ways that have no parallel in speech and writing' (2005: 54). Hayles alludes to two examples of this dynamic. The first is to the 'essential practice' in software engineering of 'conceal[ing] code with which one is not immediately concerned' (2005: 54). The second example is, well, more revealing: '[R]evealing code when it is appropriate or desired also bestows significant advantage. The "reveal code" command in HTML documents ... may illuminate the construction and intent of the work under study' (2005: 54). This essay unfolds in the space between concealing and revealing limned by these two examples.

Hayles' characterisation of revealing code, while generally accurate in its implications, itself conceals a double slip which simultaneously defines and textures my argument. Hayles first slips among hierarchies and layers of code when she locates the command 'in' HTML documents. From the perspective of someone sitting in front of a computer browsing the Web, it may not be clear 'where' this command is. As I browse, using Firefox version 3.6.12 for Ubuntu, I find this command available both in the browser's 'Edit' menu and in the menu which appears when I right-click in a displayed HTML document; the command is also executed when I use the control-u key combination. Is the command 'in' the document? Authors of HTML documents need not expend any extra effort to put this command 'in' their documents: their concern – their place in the hierarchy – is exclusively the content, structure, and behaviour of the document as it will be rendered by a browser application. HTML